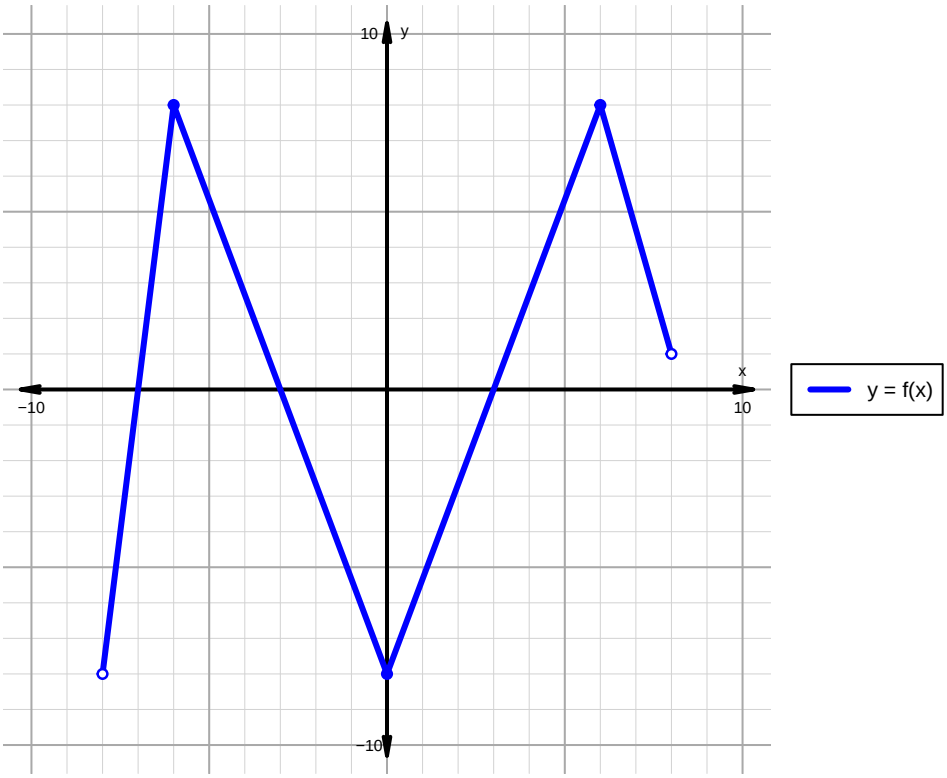
Name: Date:

## Intervals, Transformations, and Slope Solution (version 1)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-7,-3)\cup(3,8)$ |
| Negative | $(-8,-7)\cup(-3,3)$ |
| Increasing | $(-8,-6)\cup(0,6)$ |
| Decreasing | $(-6,0)\cup(6,8)$ |
| Domain | $(-8,8)$ |
| Range | $(-8,8)$ |

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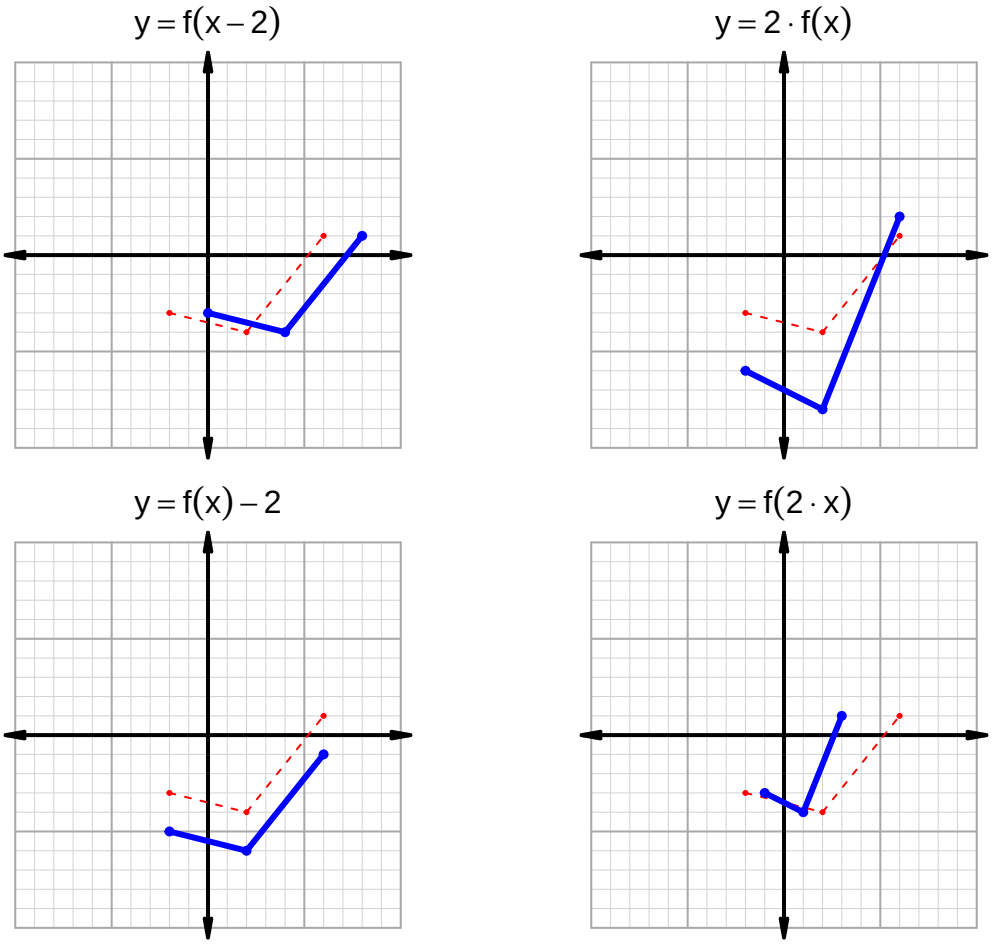
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 32$ and $x_2 = 95$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 32 | 74 |
| 47 | 32 |
| 74 | 95 |
| 95 | 47 |

$\frac{f(95)-f(32)}{95-32} = \frac{47-74}{95-32} = \frac{-27}{63}$

The greatest common factor of -27 and 63 is 9. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-3}{7}$$